

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed June 6, 2005 (Paper No. 20050601). Upon entry of this response, claims 2, 4-5, 8, 11, 14, 16, 18, 29, 31, and 34-48 are pending in the application. In this response, claims 34, 37, and 40-41 have been amended, claims 43-48 have been added, and claims 1, 3, 9-10, 12-13, 15, 17, 19-28, 30, and 32-33 have been cancelled. Applicant respectfully requests that the amendments being filed herewith be entered and request that there be reconsideration of all pending claims.

1. Allowable Subject Matter

Applicant acknowledges the Examiner's indication in the Office Action that claims 2, 4, 5, 8, 11, 14, 16-18, 21, 23-25, 29, 31, 32, and 42 are allowable. Applicant also appreciates the Examiner's indication that claim 39 would be allowable if rewritten in independent form to include all limitation of the base and intervening claims. However, Applicant has not amended dependent claim 39, since Applicant believes for at least the reasons discussed below that base claim 37 is allowable over the cited references.

2. Rejection of Claims 34, 36-38, 40, and 41 under 35 U.S.C. §103

Claims 34, 36-38, 40, and 41 have been rejected under §103(a) as allegedly obvious over *Tzannes* (U.S. 6,498,808) in view of *Helms et al.* (U.S. 6,144,695).

a. Claims 34 and 40

Applicant respectfully submit that the rejection of claims 34 and 40 has been overcome by the claim amendments made herein. It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly, all elements/

features/steps of the claim at issue. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q. 2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

Applicant respectfully submits that claims 34 and 40 are allowable for at least the reason that the proposed combination of *Tzannes* in view of *Helms et al.* does not disclose, teach, or suggest at least the feature of “a tone ordering element configured to assign bits to at least a portion of the tones in an interleaved manner such that tones that are adjacent in frequency are assigned different bit densities” as recited in claim 34, or the feature of “assigning data bits to at least a portion of the tones in an interleaved manner such that tones that are adjacent in frequency are assigned different bit densities” as recited in claim 40.

The Office Action alleges that *Tzannes* discloses a bit allocation table (BAT), Table 1, “illustrating that each of a series of tones is associated with a bit density, and the number of bits assigned to each tone is different from the number of bits assigned to the adjacent tones.” (Office Action Paper No. 20050601, p. 4.) The Office Action then concludes that “when the tone interleaving of *Helms et al.* is used in the system of *Tzannes*, the bits assigned to the tones will maintain the property of having adjacent tones with different bit densities.” (Office Action Paper No. 20050601, p. 2.)

Applicant respectfully disagrees with this characterization of the teaching of *Tzannes*, and with the conclusion as to the teaching of the combination of these two references. Applicant has explained reasons for this disagreement in previously filed responses, but the Office Action indicated that Applicant’s arguments are not persuasive. Therefore, Applicant has enclosed a 37 C.F.R. §1.132 affidavit (see Exhibit A) as evidence that one skilled in the art would not understand *Tzannes* to teach that bits are assigned to tones such that tones that are adjacent in

frequency have different bit densities, and that one skilled in the art would not understand the combination of references to teach the features recited in claims 34 and 40 indicated above.

Since the proposed combination of *Tzannes* in view of *Helms et al.* does not teach at least these features recited in amended claims 34 and 40, a *prima facie* case establishing an obviousness rejection by *Tzannes* in view of *Helms et al.* has not been made. Thus, claims 34 and 40 are not obvious under the proposed combination of *Tzannes* in view of *Helms et al.*, and the rejection should be withdrawn.

b. Claims 36

Applicant respectfully traverses the rejection of claim 36. Since claim 34 is allowable for at least the reasons discussed above, Applicant respectfully submits that claim 36 is allowable for at least the reason that it depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicant respectfully requests that the rejection of claim 36 be withdrawn.

c. Claims 37 and 41

Applicant respectfully submits that the rejection of claims 37 and 41 has been overcome by the claim amendments made herein. Claim 37 has been amended to recite the feature of “logic for interleaving at least a portion of those bits assigned to frequency-adjacent tones such that frequency-adjacent tones have different bit densities” and claim 41 has been amended to recite the step of “interleaving those bits assigned to frequency-adjacent tones such that frequency-adjacent tones have different bit densities.” As discussed above in connection with claims 34 and 40, these features are not disclosed, taught, or suggested by the combination the cited references, and therefore the rejection of claims 37 and 41 should be withdrawn.

d. Claims 38

Applicant respectfully traverses the rejection of claim 38. Since claim 37 is allowable for at least the reasons discussed above, Applicant respectfully submits that claim 38 is allowable for at least the reason that it depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicant respectfully requests that the rejection of claim 38 be withdrawn.

3. Rejection of Claim 35 under 35 U.S.C. §103

Claim 35 has been rejected under §103(a) as allegedly obvious over *Tzannes* (U.S. 6,498,808) in view of *Helms et al.* (U.S. 6,144,695) and further in view of *Levin* (U.S. 5,822,374). Since claim 34 is allowable, Applicant respectfully submits that claim 35 is allowable for at least the reason that it depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicant respectfully requests that the rejection of claim 35 be withdrawn.

4. New Claims

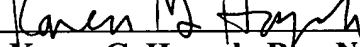
Applicants submit that new claims 43-48 are allowable over the cited references. Specifically, independent claim 43 is allowable for at least the reason that the cited references do not disclose, teach, or suggest at least the feature of “a convolutional encoder configured to encode the bits in the data frame to produce a series of symbols encoded on the tones, such that tones that are adjacent in frequency appear on non-consecutive symbols.” The remaining new claims are dependent claims, and are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants request that the Examiner enter and allow the above new claims.

CONCLUSION

Applicant respectfully requests that all outstanding objections and rejections be withdrawn and that this application and presently pending claims 2, 4-5, 8, 11, 14, 16, 18, 29, 31, and 34-48 be allowed to issue. If the Examiner has any questions or comments regarding Applicant's response, the Examiner is encouraged to telephone Applicant's undersigned counsel.

Respectfully submitted,

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